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and

reservoir communicating with the ink channels, and wherein a portion of the base member forms a support plate sandwiched between said first channel plate and said second channel plate.

12. An ink jet printhead comprising:

a channel plate having a plurality of ink channels etched into at least one surface thereof;

actuators respectively associated with each of the ink channels for pressurizing ink contained in the ink channels; and

a base member made of a material different from that of the channel plate, wherein an ink reservoir and ink supply passages are formed, said ink reservoir communicating with the ink channels via the ink supply passages.

#### **REMARKS**

It is noted, with appreciation, that the Examiner has indicated that claims 2, 4 and 6 contain allowable subject matter, and that these claims would be allowed by writing them in independent form, and by creating certain informalities as noted by the Examiner. In this connection, it should be noted that claim 1 has been amended to include the allowable subject matter of claim 2, and correspondingly, claim 2 has been canceled from the present application. Also, claim 4 has been rewritten in independent form as newly

added claim 8, and correspondingly, claim 4 has been canceled from the present application. Claim 9 has been added to the present application, said claim being identical to original claim 5, but dependent upon newly added claim 8. Claim 6 has been amended in an effort to provide antecedent basis as requested by the Examiner in paragraph 4 of the Office Action letter. Claim 10 has been added to the present application, said claim being identical to claim 6 but dependent upon newly added claim 8. Claim 11 has been added to the present application, claim 11 more specifically reciting the first and second channel plates utilized in the present invention. Finally, claim 12 has been added to the present application, newly added claim 12 representing a ink jet printhead structure which, in the Applicants opinion, is distinguishable over the Akahane reference (U.S. Patent 6,1432,616), relied upon by the Examiner. Newly added claim 12 closely reflects the subject matter of original claim 1, and accordingly, the allowability of claim 1 would be argued with respect to the Akahane patent. It is believed that the Akahane patent in no way solves the problem addressed by the present invention.

The present invention notes that there is tendency in printhead technology towards ever increasing resolution, which means, decreasing nozzle pitch and consequently smaller dimensions for the ink channel in the width direction. Such small dimensions can only be realized when employing the material having low graininess (reduced grain size). Utilizing an entire

printhead (including the ink reservoir and the ink supply passages) with a material satisfying these requirements would be too expensive and therefore economically not viable. As the ink reservoir (32) and the ink supply passages (40) do not have to meet these stringent dimensional requirements due to their comparatively large size, the present invention suggests to fabricate the ink channels separately with such a high quality material, thereby reducing both material and manufacturing cost. The Akahane patent forms both the ink channels, that is, the narrow part (13) as well as the ink supply passages, that is, communicating elements 14 in the same high quality material (10). According to one of the features in the present invention, as indicated in newly added claim 12, the ink reservoir (32) and the ink supply passages (40) are formed in the base member (10), while the small size ink channels (14) are formed in the channel plate (12) which is composed of a different material. For this reason alone, it is believed that the subject matter of claim 12 is distinguishable over the Akahane patent.

Accordingly, in view of the amendments and remarks, reconsideration of the objection and rejections and allowance of the claims of the present application are respectfully requested.



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September 30, 2002  
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### **Conclusion**

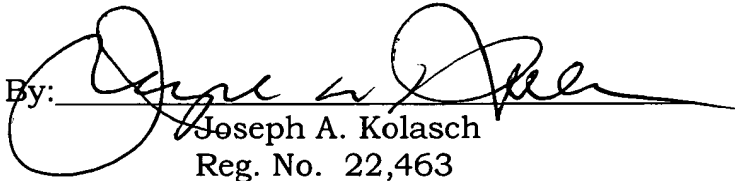
Attached hereto is a marked-up version of the changes made to the application by this Amendment.

In the event there are any matters remaining in this application, the Examiner is invited to contact Mr. Joseph A. Kolasch, Registration No. 22,463 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Enclosure: Marked Up Version of Amendments



## **MARKED UP VERSION OF AMENDMENTS**

### **IN THE CLAIMS**

**Please delete claims 2 and 4 without prejudice or disclaimer of the subject matter contained therein.**

**Please amend the claims to read as follows:**

1. ——— (Amended) An Ink jet printhead comprising  
a channel plate having a plurality of ink channels etched into at least one  
surface thereof,  
actuators respectively associated with each of the ink channels for  
pressurizing ink contained in the ink channels, and  
means defining an ink reservoir communicating with the ink channels,  
wherein said ink reservoir is defined by a base member made of a material  
different from that of the channel plate, wherein the channel plate is held in  
butting engagement with a surface of the base member in which an ink supply  
passage is formed for establishing fluid communication between the ink reservoir  
and the ink channels.

6. The Ink jet printhead according to claim 1, and having two separate  
channel plates, wherein a portion of the base member forms a support plate  
sandwiched between the two separate channel plates.

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CLAIMS 8-12 HAVE BEEN ADDED